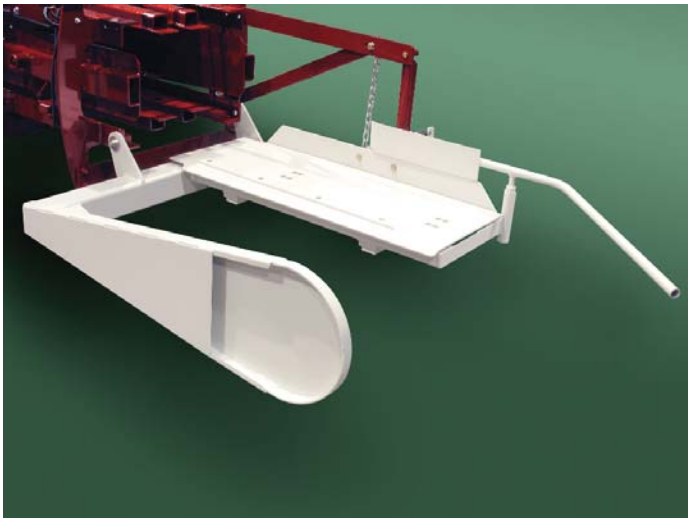


BALE SCALE

OPERATOR'S, INSTALLATION, AND PARTS MANUAL

92-054

A Product of
Allied Systems COMPANY
Sherwood, Oregon USA

Contents

Safety

General

The following pages contain general safety warnings which supplement specific warnings and cautions appearing elsewhere in this manual. All electrical and hydraulic equipment is potentially hazardous. You must thoroughly review and understand this Safety Section before attempting to operate, troubleshoot, maintain or service this Bale Scale.

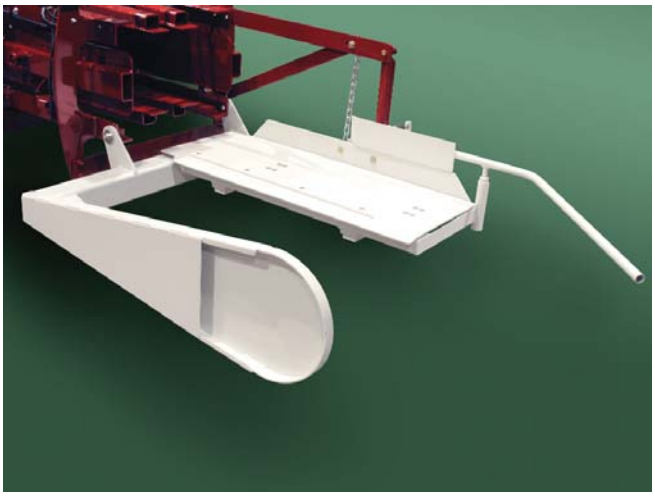
Time, money and effort have been invested in making your Bale Scale a safe product. The dividend from this investment is **YOUR PERSONAL SAFETY**.

However, it must be realized that no power-driven equipment can be any safer than the person behind the controls. If you don't operate and maintain your Freeman Bale Scale safely, our efforts will have been in vain.

The safety instructions and warnings, as documented in this manual and shipped with the machine, provide the most reliable procedures for the safe operation and maintenance of your Bale Scale. It's your responsibility to see that they are carried out.

Allied Systems Company cannot anticipate all worksite conditions, local regulations, etc. It is the responsibility of the end user to be aware of and obey any specific worksite, local, state, or national regulations or procedures that are applicable to operating this baler.

NOTE: All possible safety hazards cannot be anticipated so as to be included in this manual. Therefore, you must always be alert to potential hazards that could endanger personnel and/or damage the equipment.



Safety Symbols

The following symbols/terms are used to emphasize safety precautions and notices in this manual:

⚠ DANGER

The "DANGER" symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.

⚠ WARNING

The "WARNING" symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.

⚠ CAUTION

The "CAUTION" symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, or equipment damage. Carefully read the message that follows to prevent minor or moderate injury.

NOTICE

The "NOTICE" symbol alerts to a situation that is not related to personal injury but may cause equipment damage.

NOTE: …

The term "**NOTE**" highlights operating procedures or practices that may improve equipment reliability and/or personnel performance, or to emphasize a concept.

Intended Use Statement:

This bale scale is intended to weigh and display the weight of rectangular bales as they exit a 3-tie, Freeman side-feed baler. Use in any other way is contrary to the intended use.

Operation Warnings

⚠ WARNING

Warning: Failure to observe the following safety rules may result in extreme personal injury, dismemberment or death. It is the operator's responsibility to understand the proper and safe use of this bale scale.

- Make sure that you read, understand, and obey all of the safety precautions and operating instructions in this User's Manual.
- Keep this User's Manual with the bale scale at all times.
- Do not operate the bale scale unless you are authorized and trained to do so. If it has been some time since you last operated the bale scale, re-familiarize yourself with it before starting, then proceed slowly.
- Do not operate the bale scale if you are aware of any malfunctions, needed maintenance or repairs.
- Stop the baler immediately if any problems arise.
- Do not start the tractor if the key had been marked with a "DO NOT START" or "RED" tag.
- Never operate any of the tractor's controls from anywhere other than the operator's seat.
- Each country has its own safety legislation. It is in the operator's own interest to be conversant with these regulations and to comply with them in full. This also applies to local bylaws and regulations in force on a particular worksite.
- Should the recommendations in this manual deviate from those in the user' country, the national regulations should be followed.
- Never attempt to disconnect any of the safety devices built into the baler or tractor.
- Maintain proper clearance from energized equipment, energized power lines or other power sources. High voltage electricity can discharge to ground without direct contact with the baler's or tractor's structure. If the baler or tractor contacts energized equipment, or if electrical energy does discharge through the machine—stay clear, and prevent anyone else from coming in contact with the baler or tractor. If you are on the tractor, stand fast, avoid contact with metal surfaces, and do not permit anyone to come into contact with the tractor or baler. Finally, **Do not jump off**.

Maintenance Safety

- Maintenance, lubrication and repair of this machine can be dangerous unless performed properly. In order to ensure safety, each person working on the bale scale must have the necessary skills, information, tools and equipment, and satisfy himself that his work method is safe, correct, and meets his own company's requirements.
- Do not attempt to make adjustments, or perform repairs unless you are authorized and qualified to do so.
- Never attempt to service energized equipment.
- Never attempt servicing while the baler is moving. Shut off the tractor and secure power.
- Shut off tractor and baler engine, engage the parking brake, disengage the baler, and wait for all movement to stop before adjusting, cleaning, or servicing the bale scale.
- Tag the key switch with a "DO NOT START" sign and/or remove the key.
- Always perform all maintenance procedures with the baler on level ground, parked in a safe area.
- Block the tires to keep the machine from rolling.
- Any unauthorized modifications made to the bale scale by the customer or parties other than Allied Systems will relieve Allied Systems Company and your Freeman dealer of any liability for damage or injury.
- Replace any worn parts only with genuine Freeman parts. Call your dealer for assistance.
- Unless specified in service procedures, never attempt maintenance procedures while the baler is moving or the engine is running.
- Engine exhaust fumes can cause death. If it is necessary to run the engine in an enclosed space, remove the exhaust fumes from the area with an exhaust pipe extension. Use ventilation fans and open shop doors to provide adequate ventilation.

- Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing.
- Batteries produce explosive gases. Keep sparks, flame and cigarettes away. Ventilate when charging or servicing in an enclosed space. Always shield your eyes when working near batteries. When removing battery cables, disconnect the negative (-) cable first. When installing a battery, always connect the positive (+) cable first. This procedure will help to prevent a spark which could cause an explosion.

Safety Equipment

- Ensure test equipment is in good condition.
- If an instrument must be held while taking measurements, ground the case of the instrument before energizing equipment.
- Do not touch live equipment or personnel working on live equipment while holding a multimeter. Some types of measuring devices should not be grounded—do not hold such devices while taking measurements.
- Prevent personal injury or equipment damage by using a lifting device with a lifting capacity greater than twice the weight of any equipment to be lifted.
- Always use personal protective equipment (PPE) appropriate to the situation. This may include the use of hearing protection, eye protection, a respirator, a hard hat, leather gloves, steel toed boots, etc.

Electrical Hazards

- An electric shock could be fatal. Ensure power to the baler is “OFF” before opening electrical panels.
- All electrical cables and connectors must be in good condition (free of corrosion, damage, etc). Use caution in wet weather to avoid danger from electrical shock. Never attempt electrical testing or repair while standing in water.
- Do not wear electrically conductive jewelry, clothing, or other items while working on the electrical system.

Compressed Air Hazards

- When using compressed air to dry parts, pressure should not exceed 30 psi (200 kPa).
- Air pressure penetrating your skin can be fatal. Never direct compressed air at anyone.

Freeman Bale Scale

General

The Freeman Bale Scale allows the operator to monitor bale weight in real time, from the cab. This OEM designed and constructed bale scale is built to the same exacting standards as Freeman balers, and is easily mounted to any new and many existing 3-tie side-feed Freeman Balers.

The kit contains a bale chute assembly with integrated load cells that transmit the weight of the bale to a digital weight indicator, mounted in the cab. From there, the operator can observe the weight of bales as they leave the chamber, before they are dropped onto the field.

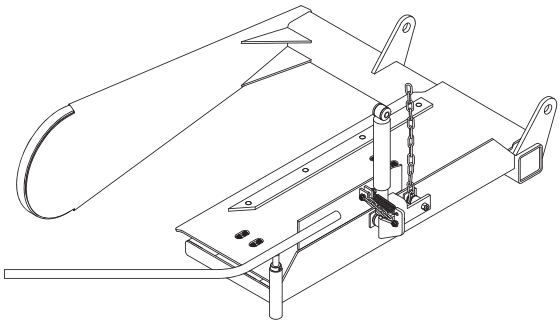
Unpacking

Immediately upon receiving the bale scale kit, it should be unpacked, and an inventory taken. See Figure 2-4-1 for a list of items that should be included. Report any missing items to Allied Systems Company (503.625.2560) immediately.

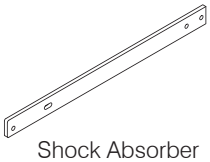
Immediately upon unpacking the kit, all components should receive a thorough visual inspection. Check for:

- Scratched or scuffed paint
- Dents or cracks
- Damaged wire harnesses or components
- Corrosion

Report these, or any other signs of damage to Allied Systems Company (503.625.2560) immediately.

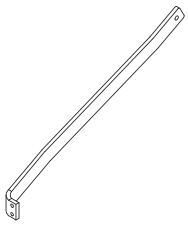


Bale Scale
Assembly (1)



Shock Absorber
Support Arm (1)

Shock Absorber
Spacer (1)



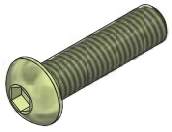
Bale Scale
Support Arm (1)

Gusset (1)

Digital Bale
Weight Monitor (1)

Components

Hardware

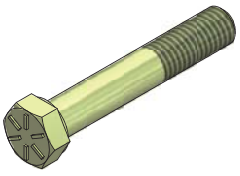


Capscrew, 1/2-13 x 2 (4)

Washer, 1/2" (3)

Clip, 3/4" (6)

Cable Ties (10)

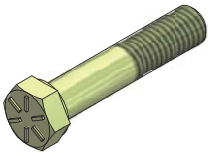


Capscrew, 1/2-13 x 3 (1)

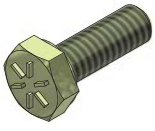
Fender Washer, 1/2" (2)

Clip, 1/4" (4)

Lock Nut, 1/2" (6)



Capscrew, 1/2-13 x 2.5 (1)



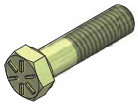
Capscrew, 1/4-20 x 0.75 (2)

Flat Washer, 1/4" (2)

Bushing, 1/2" (2)

Lock Washer, 1/4" (2)

Lock Nut, 3/8" (2)



Capscrew, 3/8-16 x 1.5 (2)

Whiz Bolt, 5/16" (4)

Washer, 3/8" (2)

Nut, 5/16" (4)

Figure 2-4-1 - Kit Contents

Installation

1. Remove existing installation

Remove the existing bale chute assembly (see Figure 2-4-2). Remove the bale weight indicator assembly, if so equipped.

2. Drill mounting holes

New holes may need to be drilled to mount the new bale scale assembly. See Figure 2-4-3 for dimensions and locations of required holes. Depending on your installation, some of these may already exist. In that case, verify that your baler matches the dimensions shown.

3. Weld gusset

If your baler does not already have the support gusset shown in Figure 2-4-4, the gusset that is included with the bale scale must be welded in place as shown in Figure 2-4-4. Note that weld filler must not be within 1" of the holes drilled in step 2, to ensure adequate bolt clearance.

4. Mount bale scale and support arms

Using a forklift or similar lifting device, place the bale scale in position as shown in Figure 2-4-5. Attach with 1/2" capscrews, nuts and washers, and torque to 86 ft-lbs (117 N-m).

⚠ WARNING

The Bale Scale assembly is heavy. Any attempt to lift into place manually could result in serious back injury. Use a lifting device, and follow all safety instructions provided with that device.

⚠ CAUTION

When lifting the bale scale, make sure the scale is supported on the structure and not the load cells. Lifting the scale on the load measuring cells may cause damage.

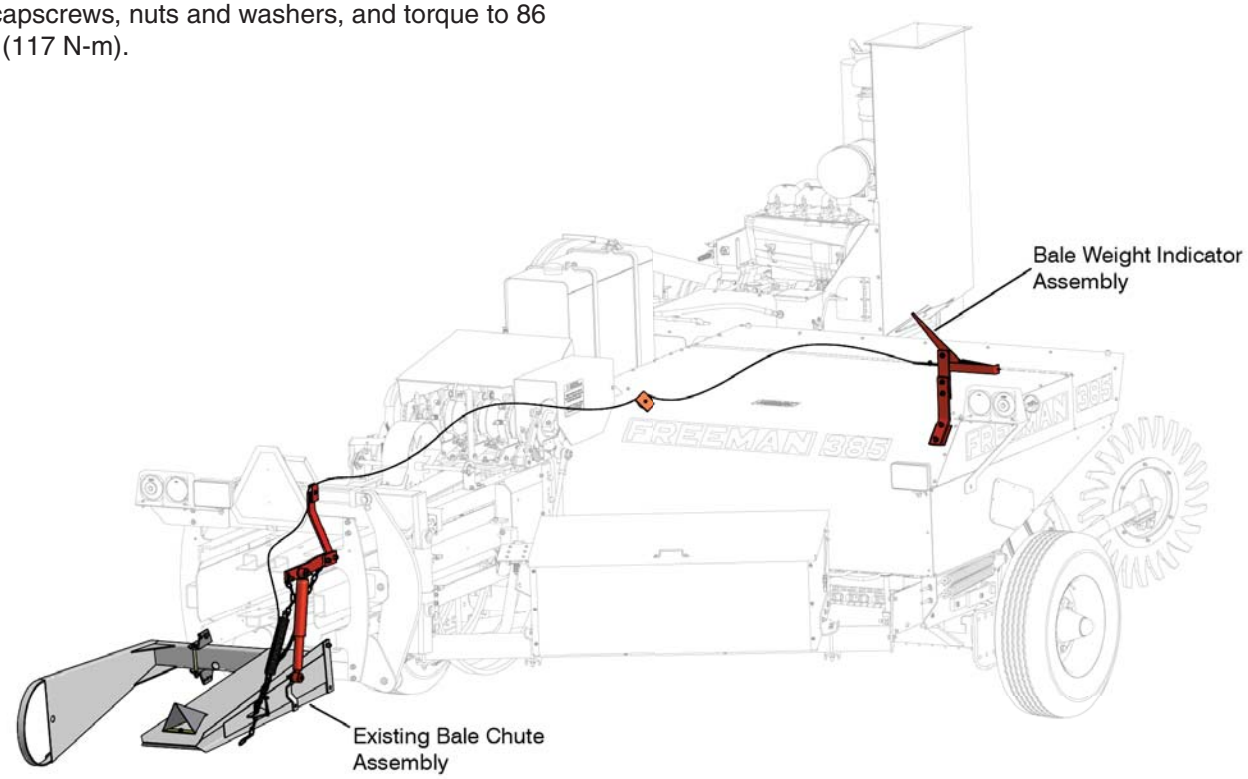


Figure 2-4-2 - Remove existing Bale Chute Assembly and Bale Weight Indicator, if so equipped

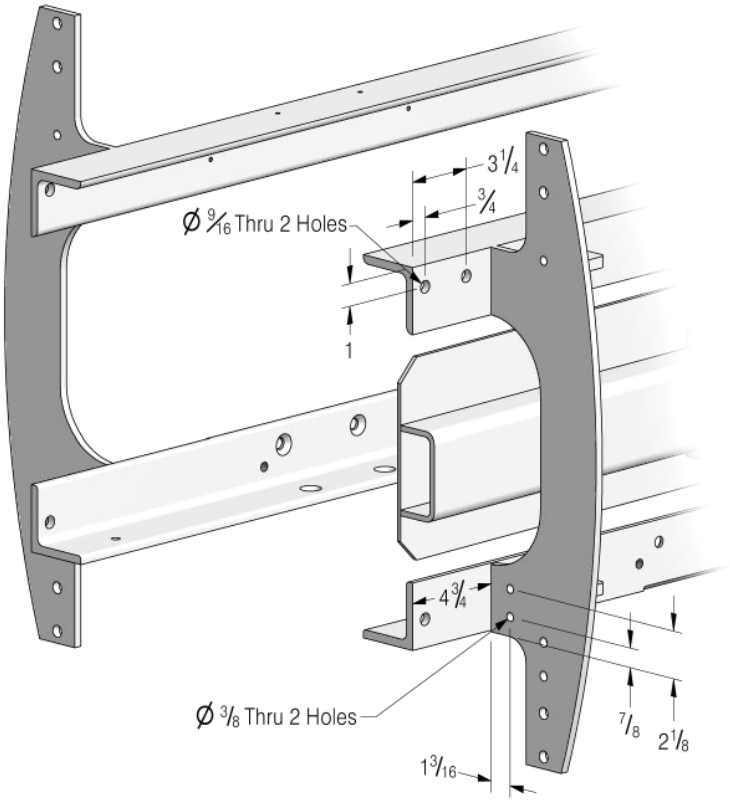


Figure 2-4-3 - Drill new mounting holes in baler frame

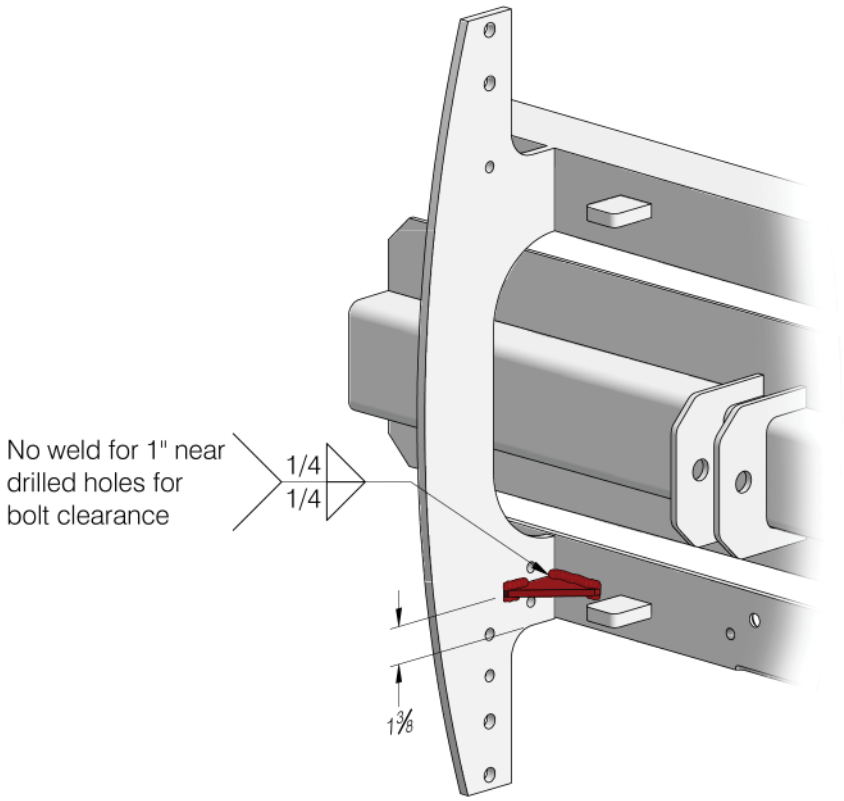


Figure 2-4-4 - Weld support gusset to baler frame

5. Mount support arms

Mount support arms as shown in Figure 2-4-5, and attach with capscrews, nuts, and washers. Leave the capscrews loose for now.

NOTE: The shock absorber support arm must be mounted with the shock mounting hole towards the bottom of the arm (see Figure 2-4-5).

6. Mount bracket and shock absorber

Mount the bracket and shock absorber as shown in Figure 2-4-6, and attach with capscrews, nuts, and washers. Leave the capscrews loose for now.

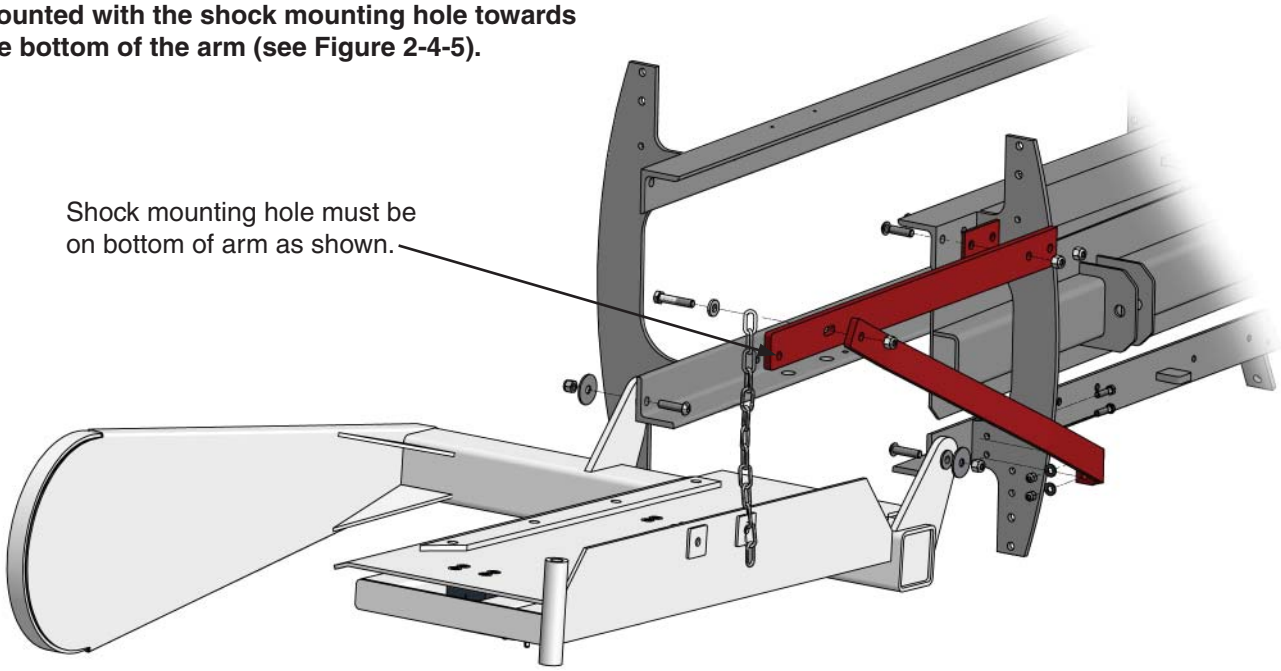


Figure 2-4-5 - Mount bale scale and support arms

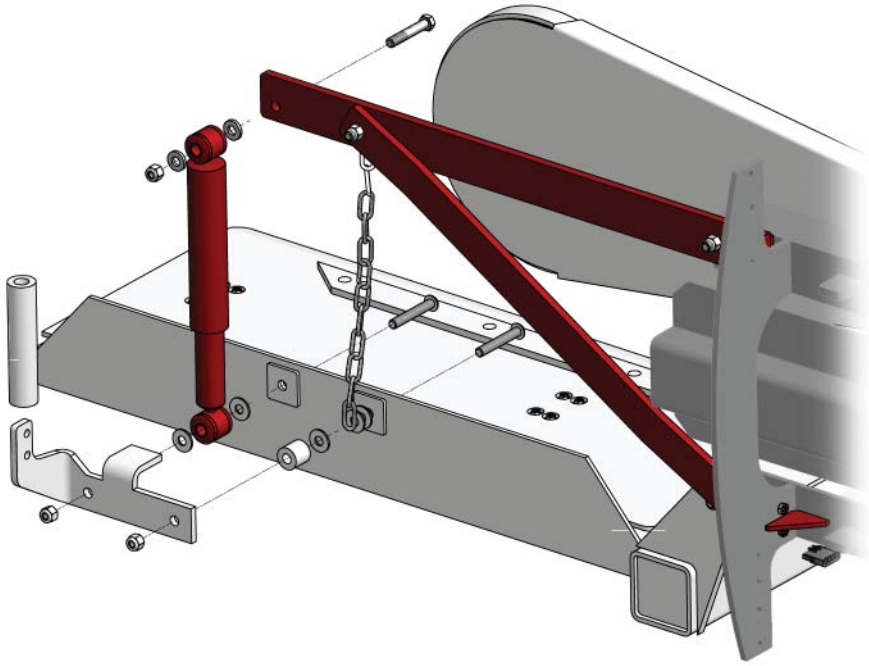


Figure 2-4-6 - Mount bracket and shock absorber

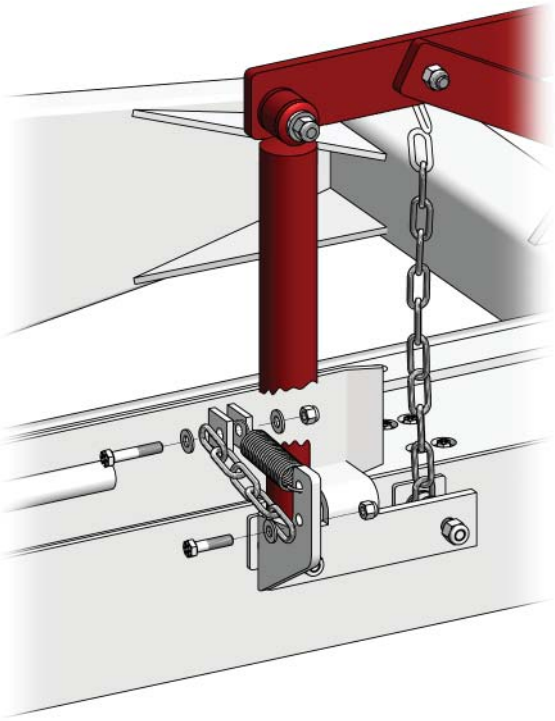


Figure 2-4-7 - Mount kicker, spring, and chain

7. Mount kicker, spring, and chain

Mount the kicker arm assembly, spring, and short chain section as shown in Figure 2-4-7.

8. Torque mounting bolts

Torque the 3/8" capscrews to 35 ft-lbs (47 N-m), and torque the 1/2" capscrews to 86 ft-lbs (117 N-m).

9. Adjust bale scale height

Check to make sure the Bale Scale is level with the bale frame rails. If the Bale Scale is not level, remove the top ½" bolt holding the chain and fasteners and twist the chain ½ turn to shorten or lengthen the chain and reinstall.

10. Mount Digital Weight Indicator

Install the digital weight indicator using the provided hardware in the cab where it is easily visible by the driver. See Figure 2-4-8 for mounting dimensions. Display should be placed close to a 12V auxiliary power outlet.

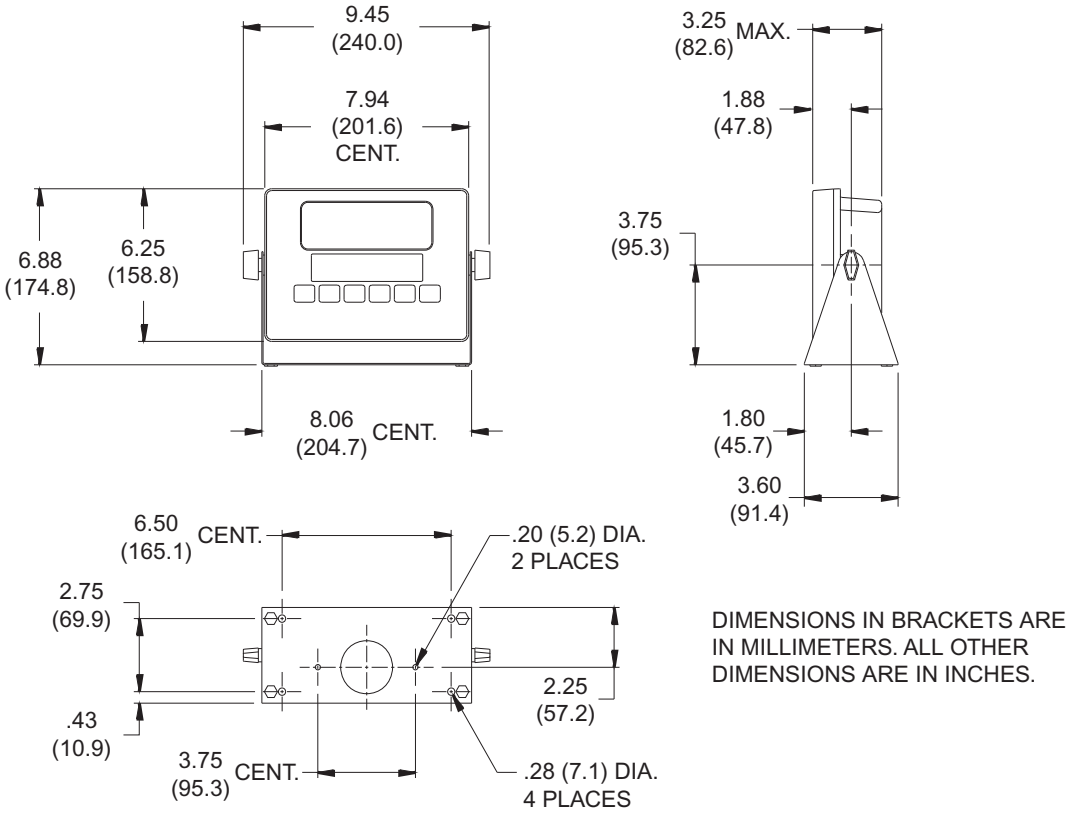


Figure 2-4-8 - Mounting Dimensions of Digital Weight Indicator

11. Connect wire harness

Connect wire harness to the load cells. Run the harness along the existing light harness (see Figure 2-4-9 for suggested routing.) Secure with the included clips and cable ties. Make sure to keep harness away from moving parts, sharp corners and transitions, high temperature sources and high electrical sources.

The clips already on your baler can be replaced with the larger clips included in this kit to accommodate both harnesses.

Do not splice, shorten or lengthen the bale scale wiring. Doing so will result in inaccurate weights and require recalibration.

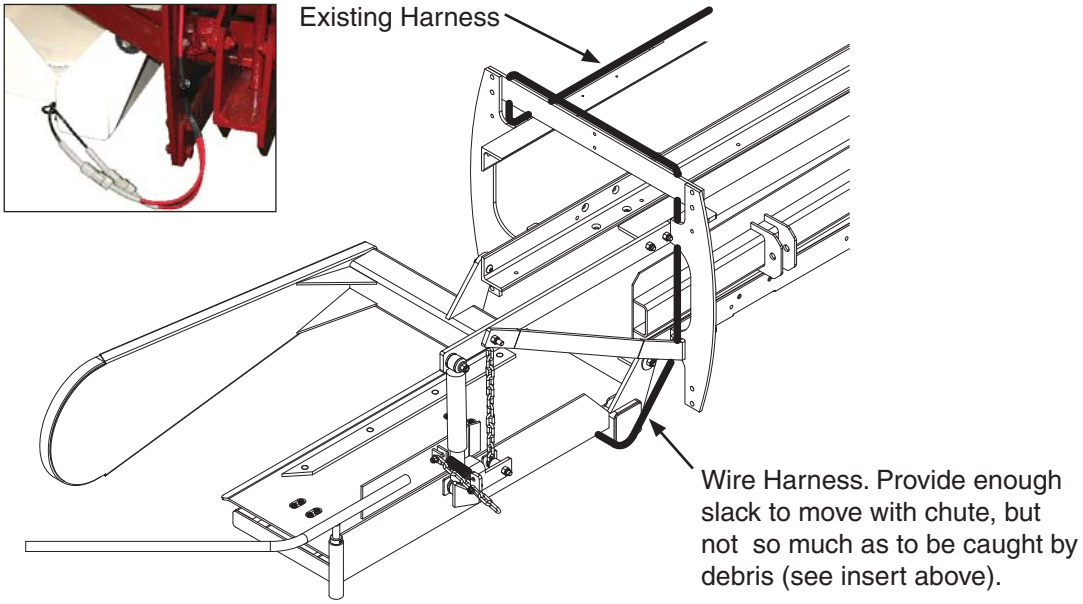


Figure 2-4-9 - Suggested Wire Harness Routing

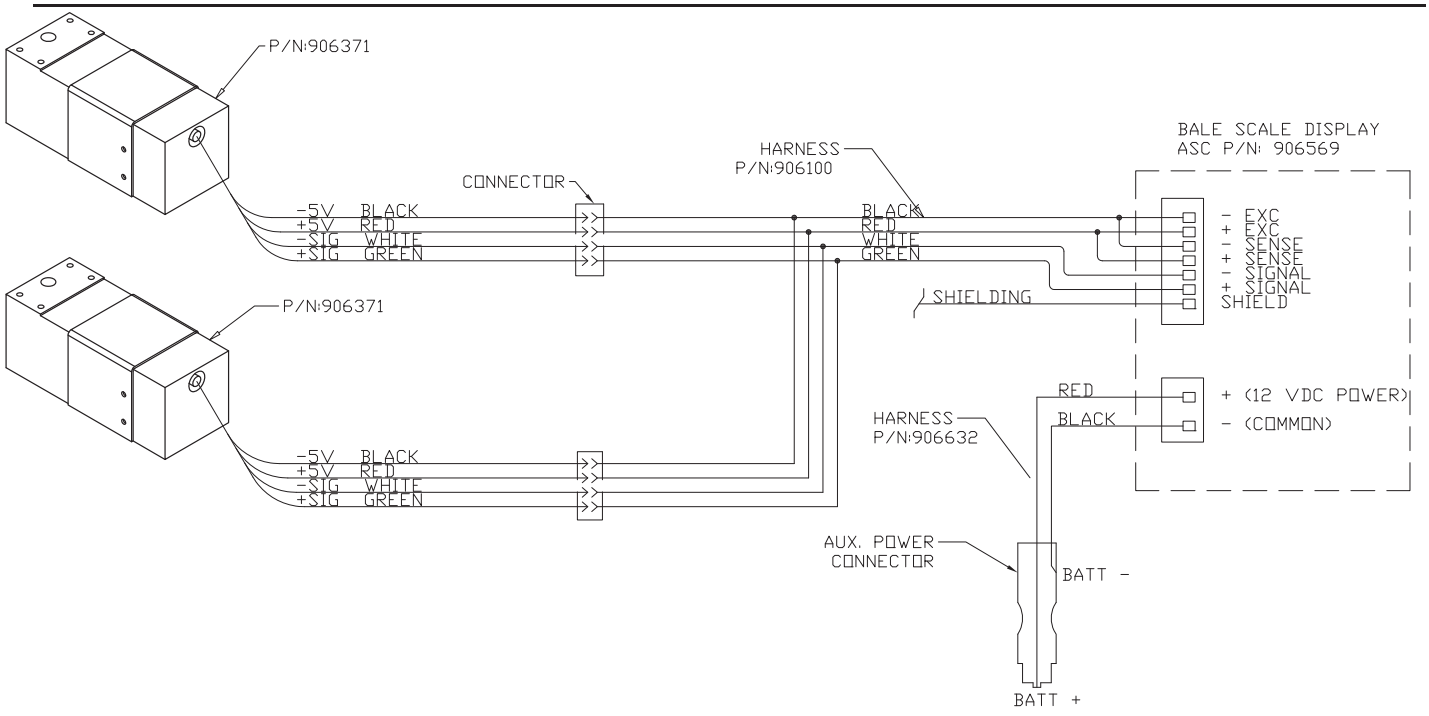


Figure 2-4-10 - Schematic

Digital Weight Indicator

General

The Digital Weight Indicator (see in Figure 2-4-11) is mounted in the cab, allowing the operator to monitor bale weights in real time during baling operations.

LED Display

The display (see Figure 2-4-12) is a seven digit, 9-segment bright green LED screen. Note that several LED indicators are not used in this application (weight shown is always in gross lbs).

Keypad

A sealed, 6-button, elastomer keypad is used for operator input (see "Button Functions" on page 2-4-15). Notice the small black figures in the thick blue portion of the bottom of the key. These indicate they keys function when navigating the menu system and inputting values (see "Figure 2-4-13 - Keypad".

Figure 2-4-11 - Digital Weight Indicator

Figure 2-4-12 - LED Display

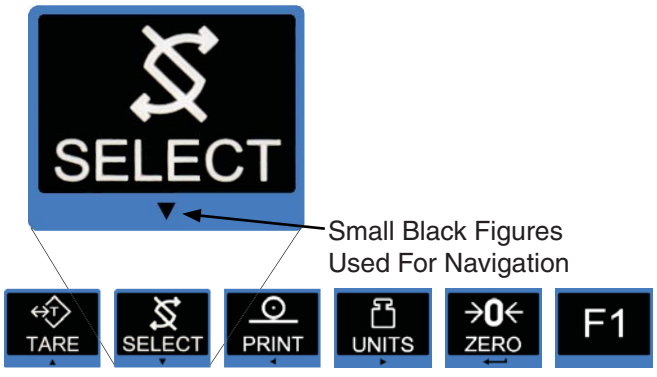


Figure 2-4-13 - Keypad

Operation

Pre-Operation Checks

1. Make sure the bale scale is clear of all bale material and that crevices and small features do not contain material that will affect the movement of the scale.
2. Remove any debris (mud, hay, chaff, etc) from the underside of the scale.
3. Make sure the scale is properly attached to the baler. This requires that all parts are installed and the bolts are tightened on the baler and on the bale scale.
4. Make sure that the scale is parallel to the baler frame top and bottom rails.
5. Check that the kicker is functional; can be rotated by hand and returns to the home position under the force of the Kicker Return Spring.
6. Check that the Shock Absorber is properly attached and functional through its range of movement.
7. Check that the wire harnesses are in good shape with no frays, and the connectors are properly connected.

Startup Procedure

1. Plug the power adaptor plug into a 12V auxiliary power outlet.
2. The scale will power up and the display will read the current weight. The display is now in the normal operating mode. The scale should be calibrated using the calibration process (see Page 2-4-18) if any of the following has occurred:
   a. Scale has experienced an overload condition (weighed in excess of +/- 1000 lb)
   b. Scale has not been calibrated within the past 1 year
   c. There have been changes made to the scale that would affect its unloaded weight (added brackets, drilling holes etc.)
   d. Wiring between the display and the bale scale has been altered (lengthened, shortened, repaired)
3. If none of the items from step 2 apply, the bale scale is ready for operation.

New Bale Scales

All bale scales and monitors shipped together from Allied Systems (in kits and on new balers) have been calibrated as a unit at the factory. It is recommended however, that they be checked with a test weight before baling.

Obtaining an Accurate Weight

During baling operations, the digital weight indicator will display fluctuating weights. The weight displayed will be related to the bale's position on the bale weight table. Additionally, the displayed weight is influenced by the baler speed, field roughness, friction between the bale and the bale scale top, speed of the bale out of the baler and calibration of the scale.

The most accurate weight is displayed when the baler is stopped, the bale is stabilized, with its center of gravity between the two bolt patterns on the bale weight table, and it is not in contact with the kicker arm.

If the weights displayed during baling operations appear to be too high or too low, bring the baler to a complete stop when the bale is stabilized on the bale weight table as described above. If the scale is properly calibrated, the weight displayed will be accurate to within +/- 2%.

Also see "Filters" on page 2-4-20.

Adjustments

The only adjustment that may be necessary during baling operations is the **zero adjustment**. This adjustment should only be made if the baler is stopped, there are no items on the bale weight table and the display does not read zero (either positive or negative values).

Zero the Display

- Make sure the baler is stopped, the bale table is stationary and there is no material on the scale. Clean the scale as necessary to assure that there is no weight on the bale weight table and no debris on the underside of the scale that could interfere with its function.
- Allow the scale to sit for 5 seconds.
- If the indicator still does not read zero, press 

until the value on the display reads zero.
- Allow the scale to sit for 5 seconds.
- If the indicator still does not read zero, recalibrate the display (see "Calibration" on page 2-4-18).

Button Functions

Key Press	In Menu Navigation	In Numeric Entry Screens
 ▲	Moves up one menu level.	Press to increase the flashing number.
 ▼	Moves down one menu level.	Press to decrease the flashing number.
 ◀	Moves left one menu item.	Press to delete the right digit in a number.
 ▶	Press to scroll through the available units of measure while in normal operating mode. Moves right one menu item.	Press to add new digit to the right.
 ↵	Press to zero the display.	Acts as an ENTER key to accept a displayed value or function.
 ESC	Moves up one menu level.	Press to escape an entry screen without saving any changes.

Figure 2-4-14 - Button Functions

Menu Structure & Navigation

Navigation

The display has a scroll through navigation system. The small black arrows at the bottom of the buttons indicate how the buttons are used when scrolling and entering information in the menus.

From normal operating mode:

1. Press & Hold F1 until “PASS” is displayed.
2. Enter the password: 3088 (see "Numeric Entry Method" on page 2-4-17). If more than three (3) seconds pass without a button being pushed, the display will return to normal operating mode.
3. The “Setup” menu will be active. Use the ▶◀▲▼ buttons to navigate. The red line in this example shows the path and button pushes used to access the “Avg Filter” menu.

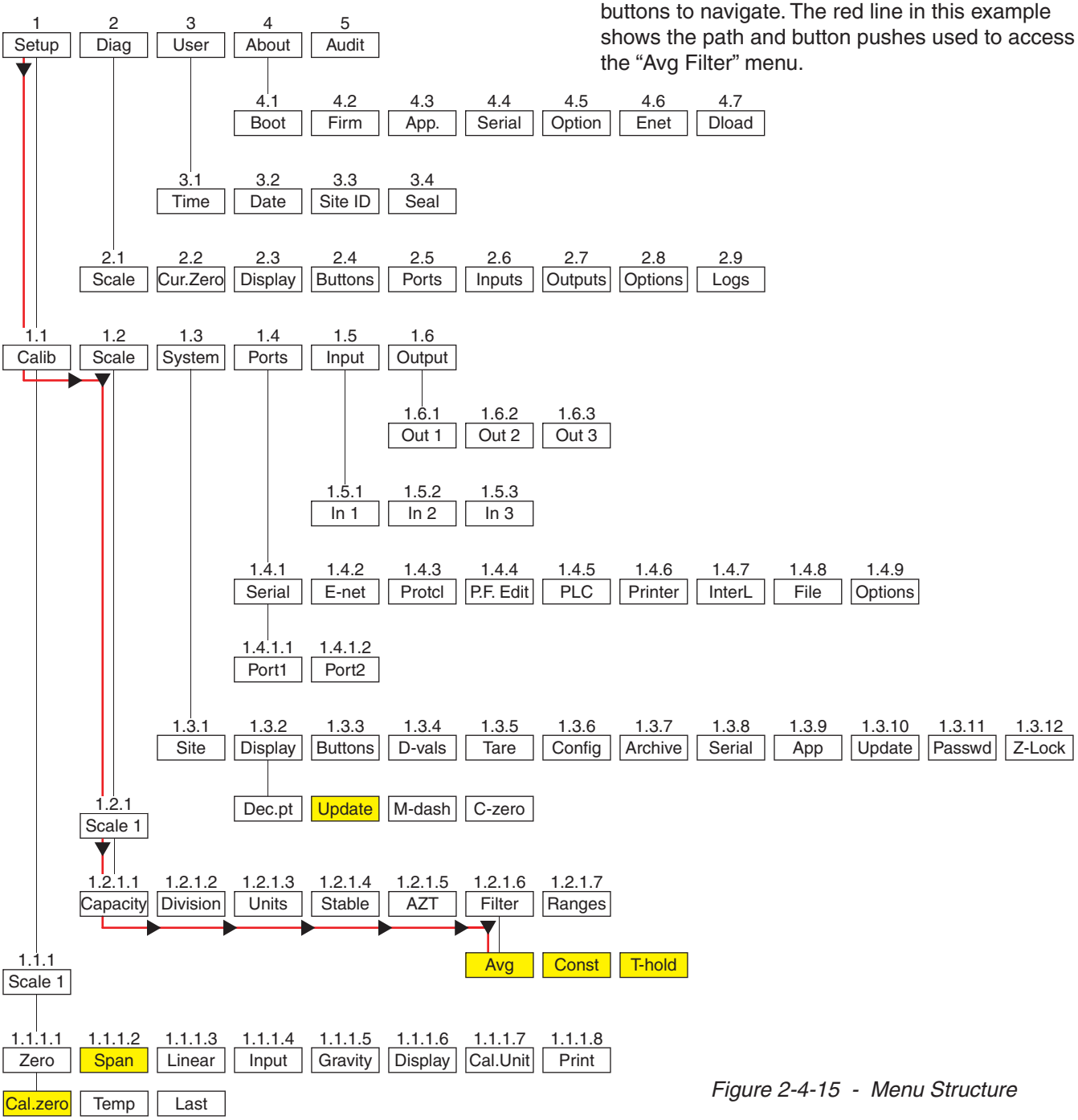


Figure 2-4-15 - Menu Structure

Exiting Menus and Saving or Canceling the Changes

Use ⟵ to accept a choice or value and move up one level. Use F1 to escape and move up one level without saving the change. From this point, press ▲ repeatedly to move up through the menu tree until "SAVE no" is displayed. Press ▶ to scroll through the three (3) choices:

1. "SAVE NO" will cancel the changes, re-boot the system, and return to the normal operating mode with the current weight displayed.
2. "SAVE YES" will save the changes, re-boot the system, and return to the normal operating mode with the current weight displayed.
3. "CANCEL" will cancel the changes and remain in the menu.

With the appropriate selection on the screen, Press ⟵ to accept the choice.

Figure 2-4-16 - Display in Normal Operating Mode

Numeric Entry Method

When entering a value in a menu option, use the ▶◀ ▲▼ arrows at the bottom of the buttons as your guide for scrolling up/down, right/left, entering and escaping. The flashing digit on the right is the one being edited.

Example: To enter the number 370:

Repeatedly press the ▲ or ▼ key until the number 3 is displayed.

Press ▶ to move to the right one digit, a flashing zero will be added.

Repeatedly press the ▲ or ▼ key until the number 7 is displayed.

Press ▶ to move to the right one digit, a flashing zero will be added.

To make a change, press ◀ to move one digit to the left. This will erase the current digit on the right, and allow you to enter a new value.

Press the ▲ key until the number 8 is displayed.

Press ⟵ to enter or accept the value and move up one level.

Or, Press F1 (ESC) to move up one level without saving any changes.

Calibration

General

The scale should be recalibrated if any of the following has occurred:

1. Scale has experienced an overload condition (weighed in excess of +/- 1000 lb)
2. Scale has not been calibrated within the past 1 year
3. There have been changes made to the scale that would affect its unloaded weight (added brackets, drilling holes etc.)
4. Wiring between the display and the bale scale has been altered (lengthened, shortened, repaired.)
5. The display is being used with a different wire harness than it was calibrated with. The different resistance between wire harnesses will require recalibration.

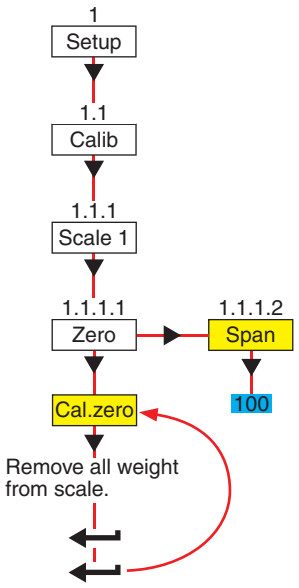


Figure 2-4-17 - Calibration Menu Tree

Procedure

1. Make sure that the baler is parked on level ground, wheels are chocked or otherwise unable to roll, is powered off, and all moving components have come to a complete stop.
2. Make sure the bale scale is clear of all bale material and that crevices and small features do not contain material that will affect the movement of the bale scale.
3. Remove any debris (mud, hay, chaff, etc) from the underside of the scale.
4. Make sure that the scale is parallel to the baler frame top and bottom rails.
5. Have a calibrated test weight, preferably 100 lbs.

Set the Zero Point

With power to the display, press & hold F1 key until the display reads “PASS,” which is the prompt for the password.

Release the key and enter the password: 3088 (see “"Numeric Entry Method" on page 2-4-17).

Press ⟵ to accept the password. The display will read “BUSY” and then read “SETUP” (see Figure 2-4-17 for the menu tree used in the following steps).

Press the ▼ button four times.... “CAL. ZERO” will be displayed.

Press the ▼ button once … a value indicating the current weight seen by the indicator will be displayed.

Remove all the weight from the scale.

Press the ⟵ button once … “BUSY” will briefly be displayed, then a zero (0) value should be shown for the weight.

Calibrate an approximate bailing weight

Press the ⟵ button once more … “CAL.ZERO” should be displayed (see Figure 2-4-17.

Press the ▲ button once … “ZERO” is displayed.

Press the ▶ button once … the word “SPAN” is displayed.

Press the ▼ button once …. “XXXX” should be displayed with a flashing right digit.

Set the value (see "Numeric Entry Method" on page 2-4-17) to equal the weight of your known test weight (100 lbs is recommended, and used for this example). The display will read “c 100.”

Press the ⟵ button. The display will read “0.”

Place your test weight (100 lbs) on the table of the bale scale, centered between the bolt patterns of the two load cells.

Press the ⟵ button once, “BUSY” should briefly be displayed, and then “c 100.”

Press the ⟵ button once…. “SPAN” will be displayed.

Press ▲ or F1 repeatedly until “SAVE NO” is displayed. See ""Exiting Menus and Saving or Canceling the Changes" on page 2-4-17 to save the changes.

Filters

The bale scale monitor has 4 settings that can be customized to provide accurate, easy to read results depending on your baling conditions. This section provides information on what each setting does, how to adjust the settings, and the factory defaults for each setting.

The factory defaults have been selected to filter out most spikes and provide a constant displayed weight in typical baling conditions.

Depending on the material you are baling and your field conditions, you may want to adjust these settings slightly. See "Figure 2-4-19 - FIlter Adjustments" on page 2-4-21 for suggestions on when and how to customize.

To change these settings, access the Setup menu using the password: 3088 (see "Navigation" on page 2-4-16). From the Setup menu navigate to the following parameters:

UPDATE (Display Update Frequency) (Options are: 1, 2, 5, 10, 20)

The factory setting is 1.

UPDATE adjusts how many times per second that the display is updated. Increasing the value will result in more rapid display updates, while decresing the value will result in the display updating more slowly, but may miss a peak weight.

Adjusting - After entering the password (3088), follow the **blue path** from the SETUP menu to the UPDATE menu using the arrow buttons as shown in "Figure 2-4-18 - Update & Filter Menu Tree". Once at the UPDATE menu, press ▼ to see the current value. Use ▶ & ◀ to scroll through the choices of 1, 2, 5, 10, or 20 updates per second. Press ↵ to accept the choice and return to UPDATE, or F1 to return to UPDATE without saving the changes.

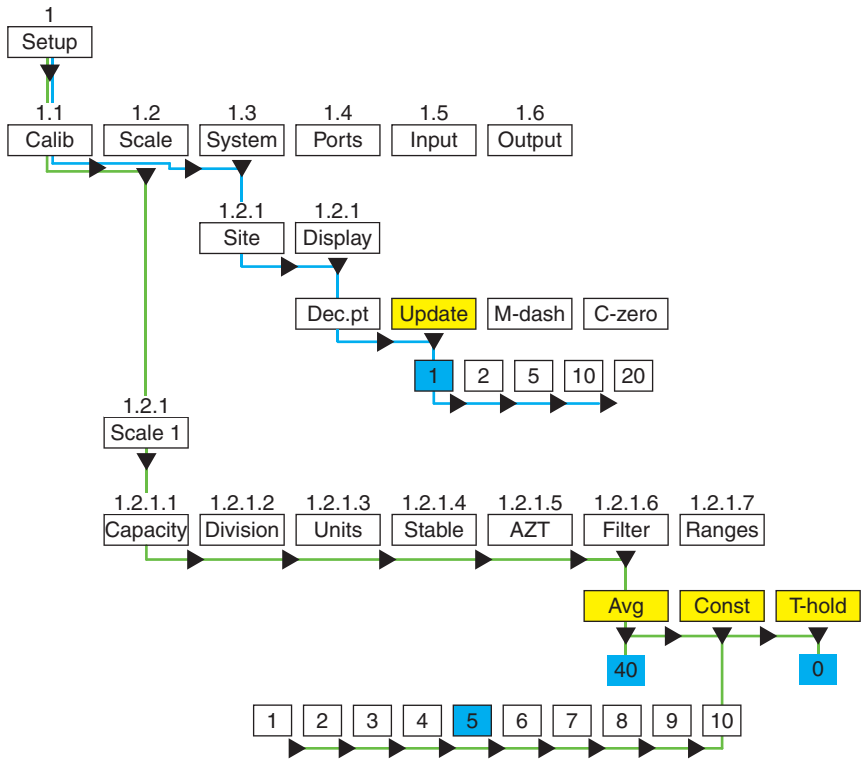


Figure 2-4-18 - Update & Filter Menu Tree

AVG (Average):

The factory setting is 40.

The system samples the input scale weight 80 times per second. The Average value is how many of these previous samples are averaged together to determine the displayed weight each time the update occurs. If AVG = 40, then the last 40 samples, or 1/2 second of data, will be averaged and displayed each time the display updates.

Increasing this number can help dampen out spikes due to bouncing through rough fields. However, since the weight is increasing as the bale moves onto the scale, setting this too high, could give a low reading.

With the factory settings, the display is updated every 1/2 second, with the average weight during the previous 1/2 second.

Adjusting - After entering the password (3088), follow the **green path** from the SETUP menu to the AVG menu using the arrow buttons as shown in "Figure 2-4-18 - Update & Filter Menu Tree". Once at the AVG menu, press ▼ to see the current value. See "Numeric Entry Method" on page 2-4-17 for how to change the value.

CONST (Constant):

The factory setting is 5.

The CONST is the digital filter. This is used to dampen the weight fluctuations received from the bale scale, steadying the displayed value. This can be set from zero (0) for no filtering, to ten (10) for extreme filtering. This value should not be set above six (6). A setting between 4 and 6 should provide good results.

Adjusting - After entering the password (3088), follow the **green path** from the SETUP menu to the CONST menu using the arrow buttons as shown in "Figure 2-4-18 - Update & Filter Menu Tree". Once at the CONST menu, press ▼ to see the current value. Use ▶ & ◀ to scroll through the choices of 1 through 10. Press ↵ to accept the choice and return to CONST, or F1 to return to CONST without saving the changes.

T-HOLD (Threshold):

The factory setting is 0, Constant filter is always on.

Threshold acts as the switch that turns the Constant filter on or off. If the weight change between display updates is greater than the Threshold value, the Constant filter is momentarily shut off and its digital filter queue is replaced immediately by the new weight. This is used for drastic changes, such as when the bale is kicked off of the scale, resulting in a drastic weight change, so that the displayed weight of the new bale is not influenced by the last bale.

Adjusting - After entering the password (3088), follow the **green path** from the SETUP menu to the T-HOLD menu using the arrow buttons as shown in "Figure 2-4-18 - Update & Filter Menu Tree". Once at the T-HOLD menu, press ▼ to see the current value. See "Numeric Entry Method" on page 2-4-17 for how to change the value.

Variable	Factory Setting	Field Condition	
		Smoother	Rougher
UPDATE	1	Recommend leaving this setting at “1”. At 5 updates/second, it is very difficult for the operator to see the peak weight since it may only be on the screen for 1/5 second.	
AVG	40	May be able to lower this number, as there should be smaller variations due to bouncing. This could lead to more accuracy.	May be able to raise this number to take average weights over a longer period reducing the influence of big spikes. However, as the weight is continually increasing, raising AVG too much could lead to a lower than actual reading.
CONST	5	If response is too slow, try reducing by 1 number, but do not go under 4.	If response is too rapid, try increasing by 1 number, but do not go over 6.
T-HOLD	0	This setting allows the CONST filter to always be working.	

Figure 2-4-19 - FIlter Adjustments

Error Messages	
Overload	
Can't Fit on Display	
Underload	
Can't	
Entry Not in Valid Range	
Password Entry Failed	
Remote Display Not Receiving Data From the Master Indicator	
Indicator Did Not Reach a Stable Zero Weight Within Time Window Set For Automated Weighing Process	  

Figure 2-4-20 - Error Messages

Troubleshooting

Load Cells

If one load cell is disconnected, the display will not indicate an error. However, the indicated values will not be correct and will usually read significantly higher than actual.

Before proceeding, make sure that there are no loose wires at the terminal connection to the display, and that the terminal is securely connected to the display.

To determine if one load cell or its wiring is causing a problem, each load cell may be disconnected. If the system is operating correctly, the displayed weight should change significantly when each load cell is disconnected. Locate the connectors on the right side of the bale scale near where it attaches to the bale chute (see Figure 2-4-21).

1. Place a bale (or similar weight) on the scale, centered between the bolt patterns of the load cells.
2. With the display powered on, note the weight indicated on the display.
3. Unplug one of the load cell connectors (see Figure 2-4-21).
4. Note the weight indicated on the display after unplugging the connector.
5. Compare the two weights from steps 2 & 4.
6. If the weights are the same, then the display is not receiving a signal from the unplugged load cell. There may be a problem with the load cell, the wiring, or the connection. If the weights are different, proceed to step 7.
7. If the weights were different from steps 2 & 4, reattach the connector from step 3, and unplug the other connector.

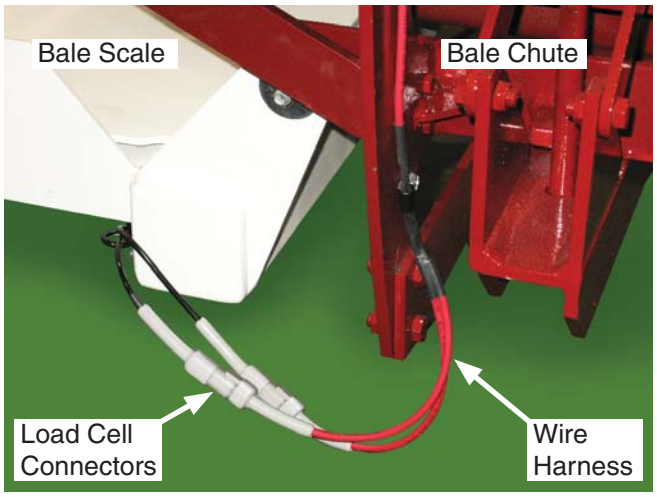


Figure 2-4-21 - Load Cell Connectors

8. Note the weight indicated on the display after unplugging the second connector.
9. Compare the two weights from steps 2 & 8.
10. Again, If the weights are the same, then the display is not receiving a signal from the unplugged load cell. There may be a problem with the load cell, the wiring, or the connection.
11. If the weights are different in step 9, and were different in step 6, it would indicate that the load cells are operating correctly. If you feel the display is still not reading accurately, recalibrate the scale (see "Calibration" on page 2-4-18).

Spare Parts

This section contains all components of the bale scale that can be separately identified as well as parts necessary for equipment support.

Illustrations

Illustrations are provided whenever possible to represent component parts and the mounting location of those parts. The numbered labels correspond to the item numbers in the parts list.

Parts Lists

Component parts lists are presented in a 5-column format:

Item: Index numbers found in this column correspond to the numbers found on the respective parts location illustration. Some items are shown for reference purposes only to illustrate their relationship to other systems.

Notes: This column identifies footnotes applicable to specified items.

Part Number: This column lists the Allied Systems Company Part Number.

Quantity: This column lists the total number of a specific item required per assembly or subassembly. This number may not necessarily be the number of items used in the end item or system. Only one set of components is listed whenever the components of two assemblies are the same.

"**A/R**" (as required) identifies bulk items whose length or other dimension must be specified when requisitioning.

"**Ref**" identifies items shown for reference purposes only to illustrate their relationship to other systems.

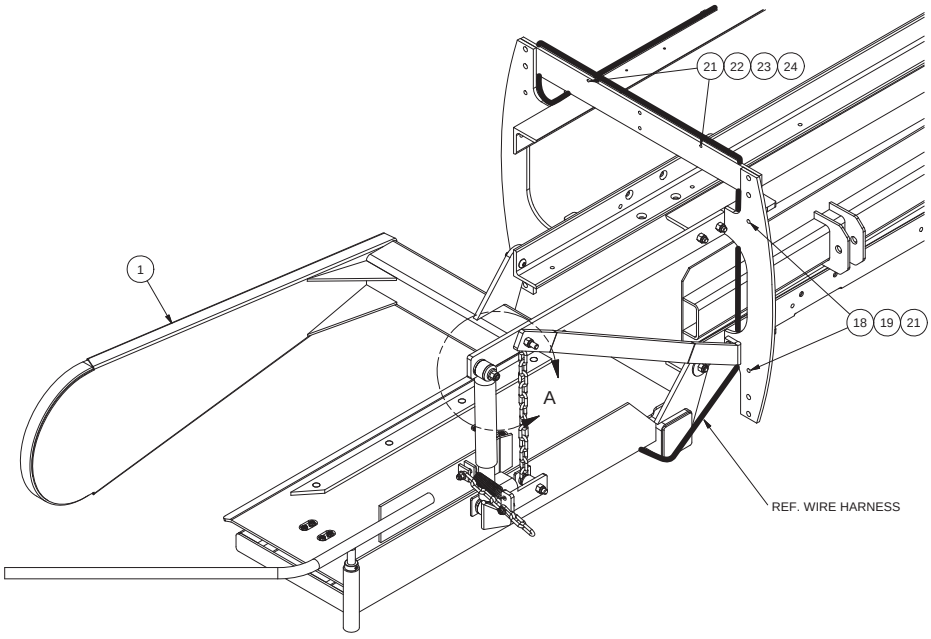
"**NSS**" (not sold separately) identifies items such as valve housings and spools, ring gears and pinions, etc., which must be ordered as a set because they are closely mated at manufacture.

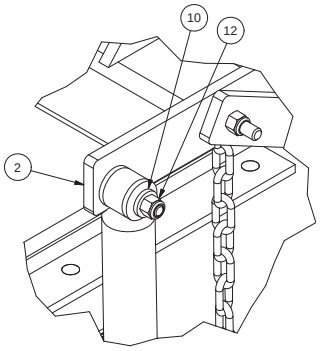
Description: This column lists the item nomenclature along with those modifiers necessary to identify the item. Additionally, cross references for repairable subassemblies are listed in this column. One dot preceding the description indicates that the item is a component part of the previously listed item or assembly with no dot. Two dots indicate that the item is part of the previously listed item with one dot.

Example:

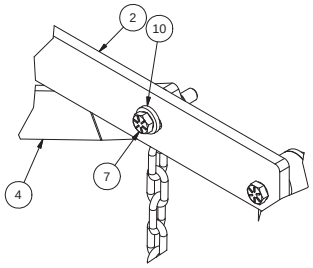
Engine Installation
. Engine Assembly
. . Manifold Assembly
. . Control Box Assembly
. . . Module Assembly

The Engine Assembly is a first level subassembly of the Engine Installation as indicated with one dot. The Manifold Assembly and the Control Box Assembly are second level components of the Engine Assembly as indicated by the two dots. The Module Assembly is a third level component of the Control Box Assembly which is indicated with three dots.

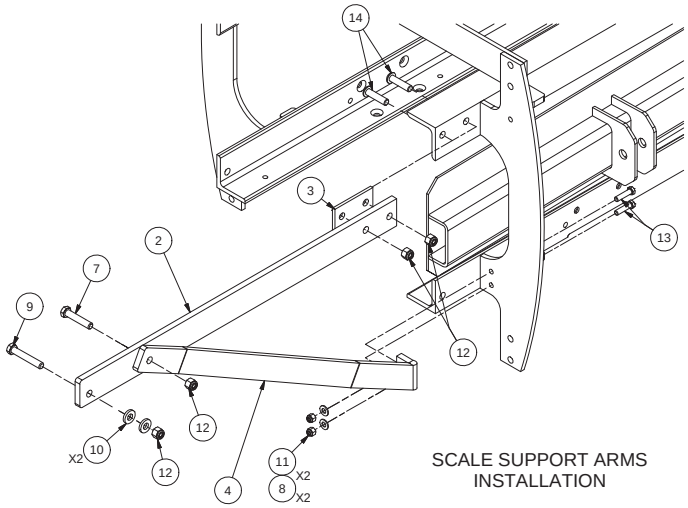




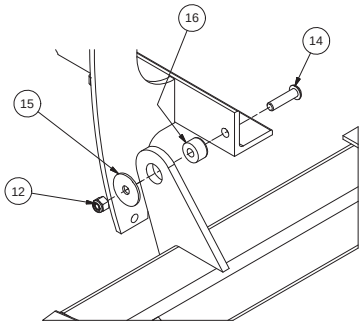
DETAIL A
SHOCK ABSORBER
MOUNTING



DETAIL B
CHAIN MOUNTING



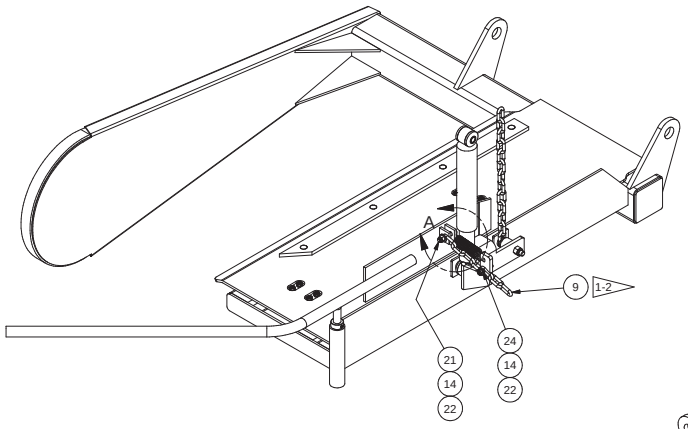
SCALE SUPPORT ARMS
INSTALLATION

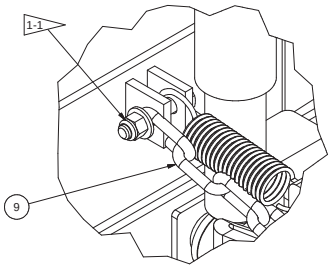


PIVOT (TYP)
FASTENER INSTL

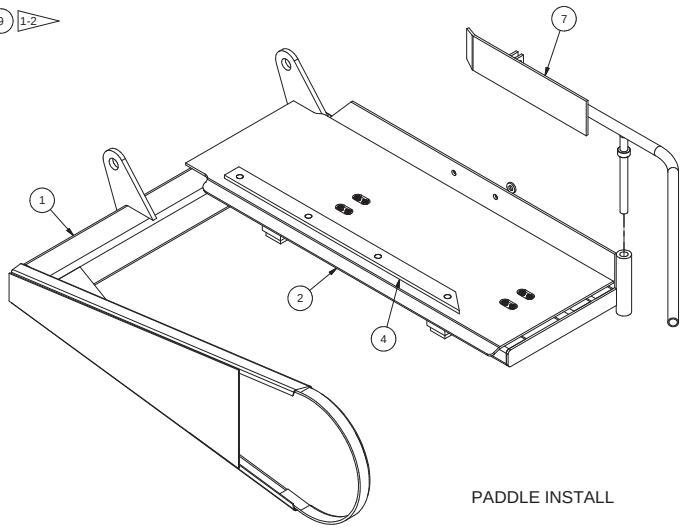
Item		Part No.	Qty	Description
		906635		**Kit, Bale Scale Installation**
1	*a	905217	1	. Bale Scale Assembly
2		905221	1	. Shock Absorber Support
3		905224	1	. Shock Absorber Spacer
4		905315	1	. Bale Scale Support
5	*b	906633	1	. Monitor
		906632	1	.. Harness, Scale Display Power
		906634	1	.. Wire Harness, Bale Scale
6		DRW0032694	1	. Gusset
7		221576W	1	. Capscrew
8		221767W	2	. Washer
9		R13801850	1	. Capscrew
10		221771W	3	. Washer
11		R13811191	2	. Locknut
12		R13811193	6	. Locknut
13		Y17C-0624	2	. Capscrew
14		Y25G-0832	4	. Capscrew
15		2305715W	2	. Washer
16		F000001132	2	. Bushing
17		R13808094	6	. Clip
18		SMS0000177	6	. Whiz Bolt
19		191534W	6	. Nut
20		248515	10	. Cable Tie
21		231593	4	. Clip, Insul.
22		R13811443	2	. Washer
23		15154W	2	. Lock Washer
24		224120W	2	. Capscrew

*a See Separate Coverage Page2-4-26
*b Not Illustrated





DETAIL A
FASTENER ORIENTATION

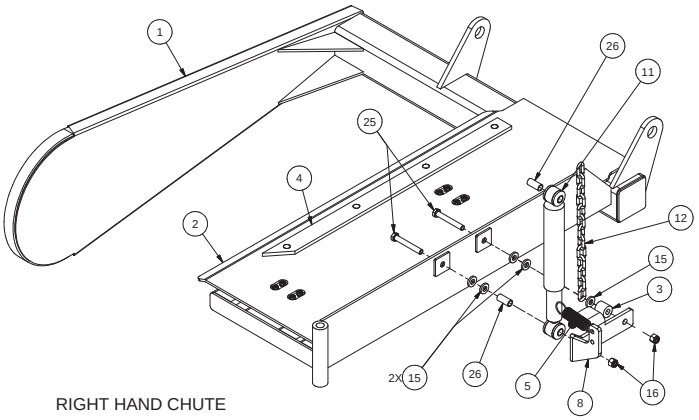


PADDLE INSTALL

NOTES:

1-1 - BOLT MUST BE INSTALLED AS SHOWN WITH HEAD TOWARDS SHOCK TO PROVIDE CLEARANCE DURING CHUTE MOTION.

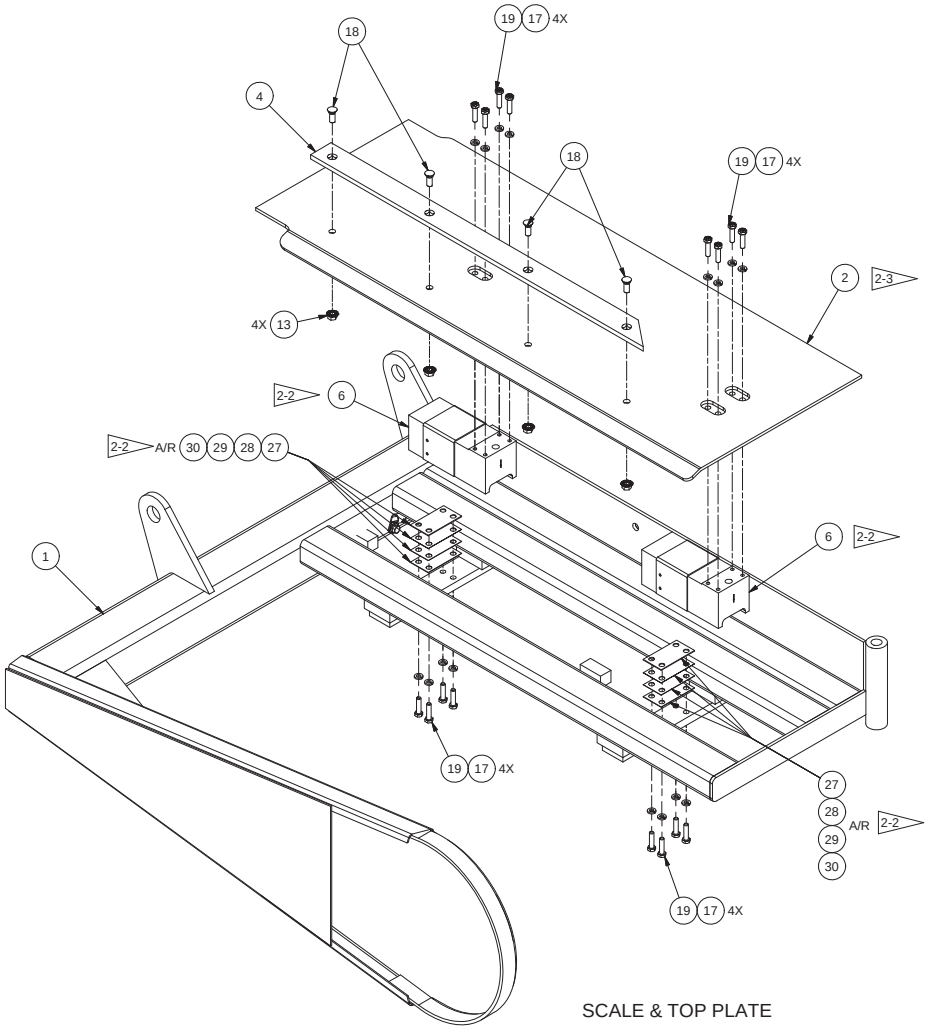
1-2 - ATTACH CHAIN (ITEM 9) USING END LINKS (NOT AS SHOWN). FULLY TIGHTEN FASTENERS.



RIGHT HAND CHUTE

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	905217		**Bale Scale Assembly**				
1	905202	1	. Bale Scale	16	R13811193	2	. Nut, Esna
2	905219	1	. Bale Scale, Top	17	R13812513	16	. Lockwasher
3	905222	1	. Spacer, Tube	18	PWB3751000	4	. Bolt
4	905223	1	. Bar	19	R13811015	16	. Capscrew
5	905226	1	. Spring	20	SMS0000184	2	. Bolt, Whiz
6	906371	2	. Load Cell	21	R13811039	1	. Capscrew
7	905305	1	. Paddle	22	R13811191	2	. Locknut
8	905307	1	. Plate, Mounting	24	Y17C-0624	1	. Capscrew
9	905948	1	. Chain, Bale Chute	25	R13811083	2	. Capscrew
10	R13803039	2	. Clip, Insul	26	906222	2	. Bushing
11	F000000988	1	. Shock Absorber	27	906121	A/R	. Shim 0.060"
12	906143	1	. Chain	28	906320	A/R	. Shim 0.030"
13	156133W	4	. Nut	29	906321	A/R	. Shim 0.015"
14	221767W	3	. Washer	30	906322	A/R	. Shim 0.005"
15	221771W	5	. Washer				

Rev G



SCALE & TOP PLATE

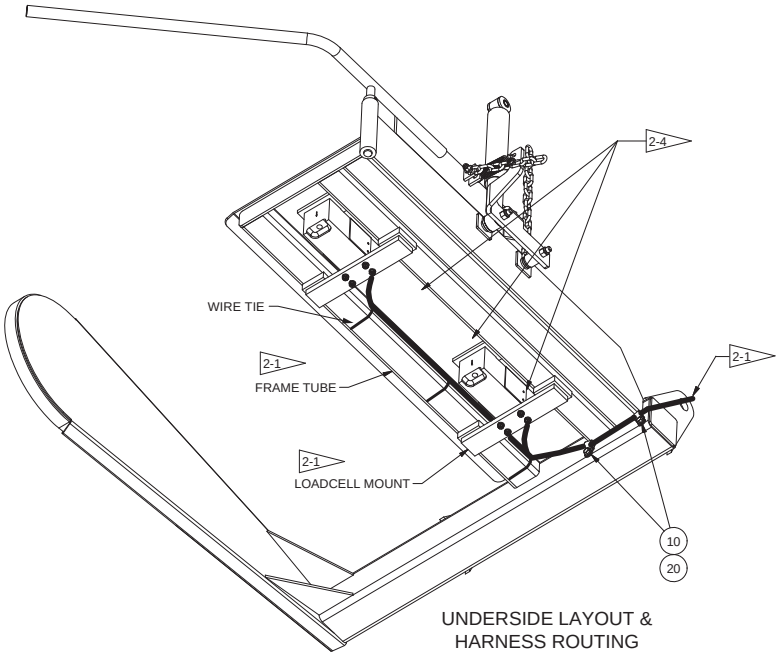
NOTES

2-1 - ATTACH LOAD CELL WIRES TO FRAME TO AVOID DAMAGE DURING OPERATION. USE WIRE TIES AND ATTACH TO FRAME TUBE AND LOADCELL MOUNT CROSS MEMBER (LOCATIONS INDICATED BY LEADERS). ROUTE WIRES TOGETHER THROUGH WIRE HOLDOWN ITEM #10.

2-2 - LOAD CELLS MAY SIT ON SCALE WELDMENT WITHOUT SHIMMING IF TOP SURFACES OF BOTH LOAD CELLS ARE ALIGNED WITHIN 0.005". CHECK ALIGNMENT WITH STRAIGHT EDGE, AND USE MINIMAL AMOUNT OF SHIM TO ALIGN TOP SURFACES OF LOAD CELLS WITHIN 0.005". SHIMS SHOULD ONLY BE PLACED UNDER LOAD CELLS.

2-3 - PLACE TOP PLATE ON ASSEMBLY, AND CHECK FIT WITH TOP OF LOAD CELLS, NO GAP SHOULD BE VISIBLE, PLACE ALL EIGHT (8) FASTENERS (ITEM 17 & 19) IN PLACE, AND START INTO THREADS BUT DO NOT TIGHTEN. SLIGHTLY ADJUST PLATE TO INSURE NO BINDING, AND THEN SNUG ALL FASTENERS FINGER TIGHT. TIGHTEN BOLTS BY ALTERNATING METHOD OVER BOTH LOADS CELLS.

2-4 - USE THREE (3) BLACK TIE STRAPS TO SECURE LOAD CELL WIRE PIGTAIL TO BALE SCALE FRAME.



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